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AUTHOR Avner, Elaine; Avner, Allen
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ABSTRACT

This paper provides the documentation for the program that provides access to the University of Illinois Online Catalog (OLC), together with a script to be used with 17 slides explaining the development of the program. Advantages of connecting a database to a computer-assisted instruction (CAI) system are outlined and sources of additional information are listed. It is noted that: (1) the menu-driven lesson assists users connected to the online catalog through a NovaNET port; (2) users submit requests in OLC language but can request definitions of format; and (3) the program provides information in a notesfile to determine whether the lesson worked correctly and what types of input errors occurred. (EW)

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Connecting NovaNET and PLATO to an External Database: The University of Illinois Library Online Catalog

Elaine Avner and Allen Avner
Computer-based Education Research Laboratory
University of Illinois

8 November 1988

UNIVERSITY OF ILLINOIS LIBRARY ONLINE CATALOG

This program allows access to the Online Catalog of the largest public university library in the United States.

To review the Library Search Commands: Press key HELP

To go directly to the Online Catalog: Press key DATA

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Elaine Avner
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

For information about the status of this program, contact:
Allen Avner (avner/al), or
Elaine Avner (e avner/pso)

Time -- 12.54.32. Date -- 10/25/88

8304 requests submitted since 1 March 1988

1. Title display of lesson "uilibrary"

IR052 749

BEST COPY AVAILABLE

>
Type a Command; press NEXT. Press HELP for help, BACK to leave

---

Type:
hints -- for a list of available information words.

fbrp -- for a page of FBR commands.
lcsp -- for a page of LCS commands.
schools -- for other LCS schools.
stop -- for list of stopwords.

Meanings of many abbreviations used in bibliographic displays are available (for example, type ugx for the meaning of UGX).

You may use the Online Catalog for 10 minutes.
You will be warned after 8 minutes and 9 minutes.

2. "Command arrow" -- user pressed DATA on title display

>
Type a Command; press NEXT. Press HELP for help, BACK to leave

---

Formats of Basic LCS Commands

Author searches	aut/6L3F
(6 letters of Last name, 3 of First)	
Title searches	tls/4F5S
(4 letters of First word, 5 of Second)	
Title of journal or serial	tls/4F5S/ser
Author/Title searches	ats/4A5T
(4 letters of Author's last name, 5 of Title)	
Shelf Position searches	sps/N
Call-number searches	dsc/N
(N=catalog number)	
Detailed search by line	dsl/L
(L=line number)	
Accessing multi-page displays	pg2, pg3, pg+
(also, use pg1, pg2, pg3 to replot a display)	

Save, Charge, or Renew the copy on line C
svl/C//SSN, cgl/C//SSN, rnl/C//SSN
(SSN=your Social Security Number)

Meanings for many abbreviations used in bibliographic listings are available. (For example, type ugx for the meaning of UGX).

Type hints for a list of available words.
Type schools for other LCS schools.
Type stop for list of stopwords.
Type fbrp for a page of FBR commands.

3. Page of LCS commands -- user typed *lcsp*

```
> aut/franklben
Type a Command; press NEXT.  Press HELP for help, BACK to leave
```

Formats of Basic LCS Commands

Author searches	aut/6L3F
(6 letters of Last name, 3 of First)	
Title searches	tls/4F5S
(4 letters of First word, 5 of Second)	
Title of journal or serial	tls/4F5S/ser
Author/Title searches	ats/4A5T
(4 letters of Author's last name, 5 of Title)	
Shelf Position searches	sps/N
Call-number searches	dsc/N
(N=catalog number)	
Detailed search by line	dsl/L
(L=line number)	
Accessing multi-page displays	pg2, pg3, pg+
(also, use pg1, pg2, pg3 to replot a display)	

Save, Charge, or Renew the copy on line C
svl/C//SSN, cgl/C//SSN, rnl/C//SSN
(SSN=your Social Security Number)

Meanings for many abbreviations used in bibliographic listings are available. (For example, type ugx for the meaning of UGX).

Type hints for a list of available words.
Type schools for other LCS schools.
Type stop for list of stopwords.
Type fbrp for a page of FBR commands.

4. **Request for items written by Benjamin Franklin**

```
>
Type a Command; press NEXT.  Press HELP for help, BACK to leave
                SHIFT COPY to retrieve request.  DATA to replot
                        "aut/franklben" done

 PAGE 1              133 MATCHES          Ø SKIPPED        (NOT ALL DISPLAYED)
Ø1 FRANKLIN, BENJAMIN 1706-1790      NEW EXPERIMENTS AND OBSERVATIONS ON EL 1760
Ø2 FRANKLIN, BENJAMIN.               POOR RICHARD'S ALMANACK.$NY            1902
Ø3 FRANKLIN, BENJAMIN, 1706-1790     PAPERS  $NEW HAVEN                     1959
Ø4 FRANKLIN, BENJAMIN, 1706-1790.    THE LETTERS OF BENJAMIN FRANKLIN & JAN 1950
Ø5 FRANKLIN, BENJAMIN, 1706-1790.    FO-LAN-K'O-LIN TZU CHUAN.              1965
Ø6 FRANKLIN, BENJAMIN, 1706-1790.    LETTERS AND PAPERS OF BENJAMIN FRANKLI 1947
Ø7 FRANKLIN, BENJAMIN, 1706-1790.    BENJAMIN FRANKLIN$NY                   1969
Ø8 FRANKLIN, BENJAMIN, 1706-1790     AN ACCOUNT OF THE NEWLY INVENTED PENNS 1973
Ø9 FRANKLIN, BENJAMIN                THE COMPLETE WORKS OF BENJAMIN FRANKLI 1887
1Ø FRANKLIN, BENJAMIN, 1706-1790.    AN ADDRESS TO THE GOOD PEOPLE OF IRELA 1891
```

5. **First 10 of the items written by Benjamin Franklin**

```
>
Type a Command; press NEXT.  Press HELP for help, BACK to leave
                SHIFT COPY to retrieve request,  DATA to replot

PAGE 2                  133 MATCHES          Ø SKIPPED        (NOT ALL DISPLAYED)
11 FRANKLIN, BENJAMIN, 1706-1790.    ACCOUNT BOOKS KEPT BY BENJAMIN FRANKLI 1928
12 FRANKLIN, BENJAMIN, 1706-1790.    POLITICAL, MISCELLANEOUS, AND PHILOSOP 1729
13 FRANKLIN, BENJAMIN, 1706-1790.    QUARTET, 3 VIOLINS & VIOLONCELLO$PARIS 1946
14 FRANKLIN, BENJAMIN                THE WORKS OF DR. BENJAMIN FRANKLIN$PHI 1808
15 FRANKLIN, BENJAMIN                BENJAMIN FRANKLIN'S PROPOSALS FOR THE  1927
16 FRANKLIN, BENJAMIN, 1812-1878,ED  A DEBATE ON BAPTISM AND THE WITNESS OF 1848
17 FRANKLIN, BENJAMIN, 1706-1790.    AUTOBIOGRAFIA$ FIRENZE                  1924
18 FRANKLIN, BENJAMIN, 1706-1790.    MEMOIRS OF THE LIFE AND WRITINGS OF BE 1818
19 FRANKLIN, BENJAMIN, 1706-1790.    MEMOIRS OF THE LIFE AND WRITINGS OF BE 1818
20 FRANKLIN, BENJAMIN, 1706-1790.    THE AUTOBIOGRAPHY OF BENJAMIN FRANKLIN 1945
```

keywords: lcs, author, title, line, charge, save, renew,
call, serial, page, skip, fbr, select, link
schools, stop, lcsp, fbrp (these cause full-screen erase)
(plus many abbreviations that appear in LCS responses)

6. Request for *hints*

```
>
Type a Command; press NEXT.  Press HELP for help, BACK to leave
                SHIFT COPY to retrieve request,  DATA to replot

PAGE 1                  133 MATCHES          Ø SKIPPED        (NOT ALL DISPLAYED)
Ø1 FRANKLIN, BENJAMIN 1706-1790      NEW EXPERIMENTS AND OBSERVATIONS ON EL 1760
Ø2 FRANKLIN, BENJAMIN.               POOR RICHARD'S ALMANACK.$NY            1902
Ø3 FRANKLIN, BENJAMIN, 1706-1790     PAPERS    $NEW HAVEN                   1959
Ø4 FRANKLIN, BENJAMIN, 1706-1790.    THE LETTERS OF BENJAMIN FRANKLIN & JAN 1950
Ø5 FRANKLIN, BENJAMIN, 1706-1790.    FO-LAN-K'O-LIN TZU CHUAN.              1965
Ø6 FRANKLIN, BENJAMIN, 1706-1790.    LETTERS AND PAPERS OF BENJAMIN FRANKLI 1947
Ø7 FRANKLIN, BENJAMIN, 1706-1790.    BENJAMIN FRANKLIN$NY                   1969
Ø8 FRANKLIN, BENJAMIN, 1706-1790     AN ACCOUNT OF THE NEWLY INVENTED PENNS 1973
Ø9 FRANKLIN, BENJAMIN                THE COMPLETE WORKS OF BENJAMIN FRANKLI 1887
1Ø FRANKLIN, BENJAMIN, 1706-1790.    AN ADDRESS TO THE GOOD PEOPLE OF IRELA 1891
```

LCS: details of line L of full display: dsl/L
renew copy on line C of detailed display: rnl/C//ssn
charge copy on line C: cgl/C//ssn or cgl/C//ssn,mail
save copy on line C: svl/C//ssn or svl/C//ssn,mail

7. Request for *line*

```
>
Type a Command; press NEXT.  Press HELP for help, BACK to leave
                SHIFT COPY to retrieve request,  DATA to replot
                                "dsl/5/8" done

AC149.W3V.1049-1050   FRANKLIN, BENJAMIN, 1706-1790.
FO-LAN-K'O-LIN TZU CHUAN.       NOLC     1901623   1965       1   ADDED:  790520
   NENG   MSET
01 SER 001 UNAS                 FOR V.1049-1050, INPUT AC149.W3, B EQUALS VOL. NO.
PAGE 1 END

697.1F85A1973   FRANKLIN, BENJAMIN, 1706-1790
AN ACCOUNT OF THE NEWLY INVENTED PENNSYLVANIAN FIRE-PLACE$BOST
NOLC      929285   1973       1   ADDED:  780702
01      001 16-4W STX
PAGE 1 END
```

8. **Request for information about items *5* and *8***

```
>
Type a Command; press NEXT.  Press HELP for help, BACK to leave
                SHIFT COPY to retrieve request,  DATA to replot
                               "dsl/13/15" done

M737F854Q1946   FRANKLIN, BENJAMIN, 1706-1790.
QUARTET, 3 VIOLINS & VIOLONCELLO$PARIS
NOLC     2038285   1946       1   ADDED:  790817   NENG
01      001 16-4W MUX
PAGE 1 END

370.9748F85P1927   FRANKLIN, BENJAMIN
BENJAMIN FRANKLIN'S PROPOSALS FOR THE EDUCATION OF YOUTH IN PENNSYLVANIA$ANN AR
BOR, MICH.   27-27472          434084   1927       1   ADDED:  780506
01      001 16-4W STX
PAGE 1 END
```

```
Minutes left for Library connection:  2.0
```

9. **Request for information about items *13* and *15***

```
Type a Command; press NEXT.  Press HELP for help, BACK to leave
                SHIFT COPY to retrieve request.  DATA to replot
```

```
M787F854Q1946   FRANKLIN, BENJAMIN, 1706-1790.
QUARTET, 3 VIOLINS & VIOLONCELLO#PARIS
NOLC      2038285   1946        1   ADDED:  790817   NENG
Ø1      ØØ1 16-4W MUX
PAGE 1 END
```

```
MT_=mathematics  MU_=music  NE_=newspaper
NH_=natural hist. surv.  PH_=physics  PY_=psychology
RB_=Rare Book Rm.  RE_=reference  RM_=remote storage
Third letter in code:  X=open shelving; R=reference collection
     other letter = special collection
```

10. **Request for information about item *13* and for abbreviation *MUX***

```
        BLOCK 5-g = termreq                                  SPACE = 146
1           (w,d,bu,buo)
2           (lakng,miseng,no,nocir,onite,resv,unas)
3           (res,binding,chgd,chg,clret,rcall,rores,rlost,rnewd,snagd)
4           (nolc,mset,neng,per,periodical)
5           lcs,fbr,(author,auth,aut,aus,f*a),(title,tls,ats,f*t)
6           (line,line*search,search*by*line,detailed*search*by*line,dsl,
7           borrow,charge,mail,checkout,renew,save,reserve,cgl,rnl,svl)
8           (call,call*number*search,detailed*search*by*call*number,catalog,
9           shelf,shelf*position*search,dsc,sps)
```


11. **Synonyms for hints and definitions**

Type a Command; press NEXT. Press HELP for help, BACK to leave
SHIFT COPY to retrieve request, DATA to replot

"ds18" done

NO HOLDING UNIT-MESSAGE NOT PROCESSED

12. Message returned by OLC for incorrect format: *ds18*

UI Library Notes
Note #32 (term req)

10/11/88 11:25 am avner / cerl

-------- notes from lesson: uilibrary
request ="lcsp"
time connected = 1.17 minutes
time in lesson = 2.146 minutes
port=65-2 (12,116) waiting=0

----

13. Note generated when information is requested

UI Library Notes
Note #51 (avner/cerl)

10/11/88 12:54 pm avner / cerl

-------- notes from lesson: uilibrary
request ="autfranklben"
port=65-2 (12,116) waiting=0 OLC access time=10.47 sec
connected = 1.413 min. req = 1 menu mode = 0
PAGE 1 133 MATCHES 0 SKIPPED (NO
T ALL DISPLAYED) 01 FRANKLIN, BENJAMIN 1706-1790 NEW EX
PERIMENTS AND OBSERVATIONS ON EL 176002 FRANKLIN, BENJAMIN.
POOR RICHARD'S ALMANACK.$NY 190203 F
RANKLIN, BENJAMIN, 1706-1790 PAPERS $NEW HAVEN

----

14. Note generated by OLC request (notice the incorrect format)

UI Library Notes
Note #52 (avner/cerl)

10/11/88 12:54 pm avner / cerl

-------- notes from lesson: uilibrary
request ="dals"
port=65-2 (12,116) waiting=0 OLC access time=5.374 sec
connected = 1.828 min. req = 2 menu mode = 0
697.1F85A1973 FRANKLIN, BENJAMIN, 1706-1790AN ACCOUNT OF T
HE NEWLY INVENTED PENNSYLVANIAN FIRE-PLACE$BOST NOLC
929285 1973 1 ADDED: 78070201 001 16-4W STXPA
GE 1 END

----

15. Note generated by request *dls8* (two errors were corrected)

LCS Menu

Press the letter next to your choice.

Press	For
a.	LCS author search
b.	LCS title search
c.	LCS combined author and title search
d.	LCS call number search
e.	LCS "shelf position" search
z.	FBR Search Index

Press BACK to leave the menu and return to "command mode".

16. **Menu for selection of a subset of LCS commands**

FBR Menu

Press the letter next to your choice.

Press	For
a.	FBR author search
b.	FBR title search
c.	FBR combined author and title search
z.	LCS Search Index

Press BACK to leave the menu and return to "command mode".

17. **Menu for selection of a subset of FBR commands**

Advantages of Connecting a Database to a CAI System

[Database is the University of Illinois Library Online Catalog (OLC).]

Submit requests in the language required by the OLC

Provide definitions on demand, with synonymous vocabulary

format (e.g., request for OLC information on an author)

capability (e.g., list of participating schools)

content of OLC display (e.g., branch library, loan period, etc.)

Check and correct request before transmission to the OLC

recognized misspellings

recognized errors in format

automatic prompts for unrecognized errors

Offer menus with subset of features of the OLC

Collect information on interaction of users with the OLC and with the lesson

requests for definitions

requests sent to the OLC

comments written by users about the lesson

Elaine Avner
Allen Avner) University of Illinois
8 November 1988

For information:

about NovaNET

Donald Bitzer
Director, CERL
252 Engineering Research Laboratory
University of Illinois
103 South Matthews Avenue
Urbana, IL 61801

about lesson "uilibrary"

Elaine Avner
252 Engineering Research Laboratory
University of Illinois
103 South Matthews Avenue
Urbana, IL 61801

about the OLC or the University of Illinois Library

Beth Sandore
Assistant Autosystems Librarian
220 Main Library
1408 W. Gregory Drive
Urbana, IL 61801

People to contact for information

[slide 0]
Our initial intention when the University of Illinois Library Online Catalog (OLC) was connected to a NovaNET port was to reproduce an existing menu that is available on personal computers in the Library. This menu offers simplified access to the database. However, as we began work on the lesson on the PLATO system, we realized that reproduction of that menu was not feasible because of differences in the environment: the PC screen scrolls; the PLATO screen does not; the PC menu program is written in BASIC; the PLATO lesson is written in TUTOR.

While we considered an alternative to a menu-driven lesson, we tried a different approach to a command-driven lesson that accepts commands in the OLC language. We collected information in a notesfile to check that the lesson worked correctly. This information also revealed interaction of users with the lesson and with the OLC: types of errors in formating a request for the OLC, spelling errors, errors in interpretation by the OLC.

This information provided a basis for developing an "intelligent" lesson that allows maximum flexibility in interacting with the OLC database. Users submit requests in the OLC language but can request definitions of format.

The OLC language has a strict format, and requests with slight deviations are rejected. For example, an extra space or a missing space can result in failure of the search of the database. The lesson analyzes the request and corrects recognizable errors before transmitting it to the OLC. Errors whose nature can be detected but which are too ambiguous to correct are trapped; the user is given a message about possible solutions.

[slide 1]
On-line detailed help is available before a user is connected to the OLC. After connection is made, brief help is available. Since only one user can be connected, time is best spent searching the OLC. While a user is connected, up to 5 potential users are placed in a queue.

The number of requests actually submitted is shown. About 12% of the total number entered are captured because of error or misinterpretation. The user must correct the format of the request.

[slide 2]
The user is immediately told how to get more information. The user can retrieve this display later by pressing the HELP key.

The OLC consists of two components: LCS (Library Computer System) and FBR (full bibliographic record). LCS is useful for finding and borrowing items with known author, title, or call number.

FBR gives information similar to that in the card catalog. It is valuable for subject searches as well as for author and title searches.

Examples in this discussion are from LCS.

IR052749

[slide 3]
The user typed *lcsp* -- for a display of LCS commands.

[slide 4]
The user has requested items written by Benjamin Franklin.

[slide 5]
LCS gives 10 items on a display.

[slide 6]
The user, after moving to PAGE 2 for the next 10 items, typed *hints* for guidance on the next step.

All words here have synonyms not listed on this display. Slide 11 shows some synonyms. Requested words that are not included as synonyms are sent to the notesfile and added later to the vocabulary.

In general, information that appears above the top line and below the bottom line is provided by the lesson. Information between the two lines comes from the OLC. (Exceptions: full-display information from the lesson such as LCS commands, FBR commands, list of schools, list of stopwords.)

[slide 7]
After returning to PAGE 1, the user typed *line* for instructions on requesting information about an item on a line of the display.

The user must perform a **detailed search by line**: dsl.

[slide 8]
The user requested information about items on lines 5 and 8 on PAGE 1.

[slide 9]
The user requested information about items 13 and 15, which are on PAGE 2. Notice that the user has received warning that the connection for this session will end in 2 minutes. The user is warned again when 1 minute remains and immediately before being disconnected. After being disconnected, if no one is waiting in the queue, the user can reconnect immediately for 10 more minutes with all information intact.

[slide 10]
After reconnecting to the OLC, the user requested item 13 again and requested a definition for an abbreviation on the display: *mux*.

[slide 11]
Part of the vocabulary is shown here, including synonyms for *line*. Some of the words are actual synonyms and some are other words in the same category and are on the same display.

[slide 12]
The message returned by the OLC if the user deviates from the required format is often abstruse. Users made this type of error (omission of the slash between the command and the tag) so frequently that the lesson now corrects the error, adding the slash before sending the request to the OLC. The user is not asked to change the request and is not notified of the error. However, after the transaction, the correct form is displayed under the horizontal line (in this case, *dsl/8*), as shown in slides 5, 8, and 9.

Some users type the shorter form routinely. For example, a user starts by including the slash, and, while making several requests, omits the slash unintentionally. After the incorrect request is accepted, the user then always enters the shorter form.

Similarly, the lesson adds a space in some FBR requests. Users who have discovered this omit the space when entering an FBR request.

Other types of corrections in spelling and in format are performed. When an erroneous request is ambiguous, for example a number only, a message is displayed to the user as a reminder to check the format.

We decided that the purpose of this lesson is not to teach use of the OLC but rather to provide an efficient service to PLATO and NovaNET customers. Utilities offered by the Library teach use of the OLC commands.

[slide 13]
This slide and the next 2 slides show information collected in a notesfile to help assess interaction of users with the lesson.

Here, the user typed *lcsp* to obtain the full-screen display of LCS commands. (See slide 3.) Information collected early in development of the lesson indicated that users often mistyped this character string, so the program now accepts a few misspellings.

[slide 14]
The user omitted the slash missing between the command and the tag.

If the lesson had not detected and added the missing slash, this note would have shown the message that the user received from the OLC.

By collecting this information, we could determine what types of input errors occurred.

[slide 15]
The request in this note actually contained two errors, although only one, the missing slash, is shown. The user typed *dls8*. Notes collected during development indicated that many users typed *dls* instead of *dsl*. The difference between **detailed search by line** (dsl -- the correct form) and **detailed line search** (dls -- incorrect) is logically slight, but unacceptable to the OLC. The lesson now corrects this misspelling and several others so early in analysis of the user's request that only the corrected string is detected.

As with the previous example, the lesson adds the slash before transmitting the request to the OLC.

[slide 16]
This display shows a menu from which LCS searches can be selected. The user types information for the request (e.g., a title or an author's name) and the lesson formats the request. The lesson continues with the procedure, asking for the item to be examined and what action to take on that item (charge, save, renew).

[slide 17]
This display shows a menu from which FBR searches can be selected. Like the LCS menu, the user types information for the search.

FBR is a more complex system than is LCS. The FBR database can be searched for subjects (listed in the Library of Congress Subject Headings) and for the ISBN or ISSN. (Subject searches may entail several steps to determine the correct tag.)

Other FBR searches are of interest only to staff members of the Library. These searches will not appear on an index until frequently used features are available.

With such a complex system, menus which allow selection of features are also complex. In order to provide maximum flexibility of this system, a user can retreat from the menu and resume entering requests in the OLC language.

A topic not mentioned in this discussion is **stopwords** -- words that must be omitted in LCS searches. Handling stopwords can be tricky. A few months ago, an experienced LCS user performed a search for a title (title alone and author-title). The search failed to find a book which <u>is</u> in the Library catalog (the purpose of the search was renewal). The LCS index, which is not released to users, found the book by title and by author-title searches. The reason? The LCS index removes stopwords, and the first word of the title was a stopword. While most stopwords are obvious (minor words such as articles and prepositions) this word, **house**,was not.

[summary -- next three slides or last page of hardcopy]